REMARKS

Claim 60 remains in the referenced application.

Claims 60 stands rejected under 35 U.S.C. §103(a) by Bethuy et al. (U.S. Patent No. 5,732,563 - hereinafter referred to as Bethuy) in view of Piatkowski, Jr.(U.S. Patent No. 4,010,650 - hereinafter referred to as Piatkowski). Applicant respectfully traverses the above-recited rejection because, contrary to the Examiner's assertion, Piatkowski fails to disclose the output of a pulse signal to first and second probes.

In particular, Applicant's microcontroller 51 delivers a pulse signal received by the probes 121 and 122. When the probes 121 and 122 are not contacted by liquid in the liquid container the pulse signal delivered by the microcontroller 51 to the probes 121 and 122 is shunted back to the microcontroller 51 indicating an insufficient amount of liquid in the liquid container. Conversely, when the probes 121 and 122 are contacted by liquid in the liquid container, the pulse signal delivered by the microcontroller 51 to the probes 121 and 122 is attenuated to ground via the ground probe 123 indicating to the microcontroller 51 a sufficient amount of liquid in the liquid container. Applicant's microcontroller 51 delivers the pulse signal to the probes 121 and 122 because the application of a pulse signal to the probes 121 and 122 diminishes the plating of impurities contained in the liquid onto the probes 121 and 122.

As previously argued and now admitted by the Examiner, Bethuy fails to disclose a controller coupled to first and second probes that outputs a pulse signal received at the first and second probes. The Examiner has thus combined Bethuy with Piatkowski and now asserts Piatkowski discloses the application of a pulse signal to first and second probes. Applicant respectfully disagrees with the Examiner's assertion because Piatkowski simply does not disclose the application of a pulse signal to first and second probes. Piatkowski very clearly discloses the application of a constant alternating voltage across electrodes 22 and 30 (see column 3, line 49, through column 4, line 18), and a constant alternating voltage is not a pulse signal. A constant alternating voltage is a voltage signal that continuously traverses from a positive voltage to a negative voltage during the entire time of its application. In contrast, a pulse

signal is a positive only voltage applied for a short period of time. Applicant accordingly respectfully submits Piatkowski does not disclose the application of a pulse signal to first and second probes because a constant alternating voltage is not a pulse signal.

Applicant therefore respectfully submits the combination of Bethuy in view of Piatkowski does not disclose the invention of claim 60 because modifying Bethuy in view of Piatkowski provides a system that applies only a constant alternating voltage across any system probes, and a constant alternating voltage is not a pulse signal. As such, the system resulting from the combination would not diminish the plating of impurities contained in a liquid onto the probes because the constant alternating voltage is continuously on and would therefore continuously subject the probes to a plating effect. Applicant accordingly respectfully submits claim 60 is patentable over the combination of Bethuy in view of Piatkowski because that combination does not disclose the output of a pulse signal to first and second probes thereby diminishing the plating of impurities contained in a liquid onto the probes.

In maintaining the above-recited rejection, the Examiner asserts it is well known in the art to have an alternating current (AC) signal in place of a pulse signal. The Examiner has cited U.S. Patent No. 6,018,247 to Kelly and U.S. Patent No. 4,092,867 to Matzuk as evidence that an AC signal may be used in place of a pulse signal. Applicant respectfully disagrees with the Examiner's assertion. Applicant further respectfully submits the references cited by the Examiner in fact support Applicant's position that an AC signal is not a pulse signal nor can an AC signal be used in place of a pulse signal.

An AC signal is used for the transmission of power or in high voltage applications, whereas a pulse signal is used in low voltage applications to power and operate micro-electronic circuits. An AC signal delivered to a micro-electronic circuit is converted to a direct current (DC) signal, which may be in the form of a pulse signal. Applicant respectfully asks, "Why is there a need to convert an AC signal to a DC signal if the two signals are interchangeable?" The obvious answer is that an AC signal is not interchangeable with a DC or pulse signal. This conclusion is supported by U.S. Patent No. 6,018, 247 to Kelly and U.S. Patent No. 4,092, 867 to Matzuk, which, as stated by the Examiner, respectively disclose

the conversion of a pulse signal to an oscillating signal and an oscillating signal to a pulse signal. If an AC signal was interchangeable with a pulse signal as asserted by the Examiner, there would be no need to convert from one signal to the other as disclosed by U.S. Patent No. 6,018, 247 to Kelly and U.S. Patent No. 4,092, 867 to Matzuk. Applicant therefore respectfully submits claim 60 is patentable over the combination of Bethuy in view of Piatkowski because the constant alternating voltage signal disclosed by Piatkowski is not a pulse signal nor in any way interchangeable with a pulse signal.

In view of the foregoing, Applicant respectfully requests reconsideration of the rejected claim and earnestly solicits early allowance of the application.

Respectfully submitted,

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DATE: 21 July 2004

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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated below, addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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